Analysis of Gasolines for Their Impacts on Leaking Underground Storage Tank Sites

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Gasolines are composed of hundreds of chemicals and are formulated to provide certain operating characteristics and comply with federal regulations. A study of gasoline based on samples taken from around the U.S. is intended to address their impacts at leaking underground storage tank sites. What makes one gasoline different from another in its impact on groundwater and indoor air contamination (vapor intrusion)? Can these differences be traced to variation in composition given the differing requirements for operating characteristics and regulations? These questions are being addressed in a collaboration between the ORD, state agencies, the U.S. Environmental Protection Agency (U.S. EPA) regions, universities, and the oil industry. At the first level, the collaborators are providing gasoline samples from 13 states and 22 cities or towns. These samples are used for composition testing, physical property determination, and equilibration with water and air by the U.S. EPA. The data are providing the state agency collaborators with knowledge of gasoline composition used in their states. The direction of the work has been determined from input by industry and Agency needs. The resulting data support the U.S. EPA's development of datasets for use in simulation modeling and ongoing efforts to develop and evaluate modeling approaches. These include groundwater contamination, newly emerging work on intrusion of contaminated vapors into buildings, and releases of vapors from underground storage tanks into the ground. These last two are the subject of other specific collaborative projects with state agencies.